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# Utah Facility Online Reporting System: From HAIRS to UFORS – the Evolution of a Reporting

the Evolution of a Reporting System

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# Need for Utah Facility Online Reporting System (UFORS)

- Initially
  - Reporting site for Healthcareassociated infections (HAI)
    - HAIRS
- Evolved
  - Include Patient Safety Sentinel Event Reporting
    - UFORS





## **Need for HAIRS**

- Healthcare associated infections (HAI) are a major public health problem in the US.
- Annually
  - -Estimated 2 million HAIs
  - -Over 90,000 hospital patients die
  - Economic cost of HAIs in 2002 was \$6.7 billion per year





# Creating HAIRS

- Effort initiated by public health
- Partnership between public health, patient safety committee, and Infection Control Practitioners (ICP's)
  - Determined administrative data is not good data for capturing HAIs
  - HAI Work Group (HAIWG) established
    - Comprised of various healthcare experts





# Creating HAIRS.

- Involved >18 months of discussion to resolve key issues such as terminologies, what to report, and to what degree
- HAIWG determined to start with two HAI issues
  - Central Line Associated Blood Stream Infections (CLA-BSI)
  - Influenza vaccination rates in healthcare workers.
- HAIWG was directly involved in development of a State Rule to address HAIs
  - Enabled industry-wide collaboration



# Reporting Requirement

- HAI Rule: R386-705
  - UDOH shall require that hospitals report the total number of employees who have received an influenza vaccination
  - UDOH shall require that hospitals report the number of central line patient days and the total number of CLA-BSI identified in any ICU caring for patients greater than or equal to 1 year of age



# HAIWG Helpful Tools...

- Central Line Days Worksheet
- CLA-BSI Line List Worksheet
- Algorithm and Flow Chart
- HAIRS Manual



#### ICU Central Line Days Worksheet

Month	Year	
Check type of ICU: ☐ Coronary ☐ ☐ Pediatric ☐ Neurosurgica		☐ Medical/Surgical Burn ☐ Other:

Date	Number of patients with central line(s)*
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
Total	

<sup>\*</sup> Patients with more than one central line are to counted as one line day





#### **CLA-BSI Line List Worksheet**

When reporting to the HAIRS website, do not report the patient name or MRN. https://health.utah.gov/epi/hairs/

Patient Name	MRN	UDOH Reporting ID#	ICU Type	1st Positive Culture Date	Org 2	Org 3	Disagree	Comments

#### Algorithm for CLA- BSI Surveillance

Positive blood culture (BC) from patient in a monitored ICU

ICU ASSOCIATED RULE: Determine if nosocomial to monitored ICU

YES: If ≥ 2 days of admit to ICU OR during ICU stay OR ≤ 2 days after ICU discharge

YES - ICU associated



INFECTION vs CONTAMINANT RULE: Determine if BC represents true infection (true BSI):

For isolate that is true pathogen (eg, isolate is not common skin commensal) need to meet the flowing criteria:

True BSI: YES if at least one set of BC positive.

For isolate that is common skin commensal (CoNS, corynebacterium, propionibacterium, diphtheroids, bacillus, micrococcus): need to meet the following criteria:

True BSI: YES if two or more sets of BC positive within a 2 day period. OR

True BSI: YES if only one set of positive BC within a 2 day period AND an antibiotic to treat a common skin commensal is initiated within one day of culture collection AND patient treated > 3days after initiation of antibiotic.

YES - ICU-associated true BSI

**Algorithm** 



NO- not ICU-associated true BSI



RIMARY SOURCE RULE: Determine if true BSI is primary or secondary to another source.

Primary: For true BSI with a true pathogen: YES if there is no other culture positive source with the same organism as the BC from 3 days before to 7 days after positive BC

For true BSI with a common skin commensal: YES if there is no other culture positive source with the same organism as the BC, obtained from a normally sterile site, from 3 days before to 7 days after positive BC

Secondary: If the answer to the primary source rule for a pathogen or common skin commensal is NO, then the BSI is considered secondary.

Sources that are NOT to be considered in evaluation, and thus are excluded:

Surveillance cultures (used to detect colonized state; are not considered to be clinical cultures) Catheter tips (not all hospitals have ability to perform)

Yeast in a respiratory source

Common skin commensals from a non-sterile body site

YES- primary ICU-associated true BSI



NO- secondary ICU-associated true BSI



EPISODE RULE: Determine if BSI is new episode (episode lasts 5 days starting at time of 1st "true" positive BC)

New Episode: YES if this is the first ICU associated "true" positive BC OR

New Episode: YES if a "new" organism AND >5 days from first positive BC of prior episode OR

New Episode: YES if "same" organism(s) AND >30 days from first positive BC of prior episode

Note: an episode is called "mixed" if multiple organisms are isolated from different blood cultures over a 5-day period. Assign "mixed" episode as secondary if any of the BC organisms identified in the episode fall under the secondary rule.)

Note: repeatedly positive cultures with same organism within 30 days are considered duplicates.

YES- new primary ICU-associated BSI episode YES- ICU associated mixed BSI episode



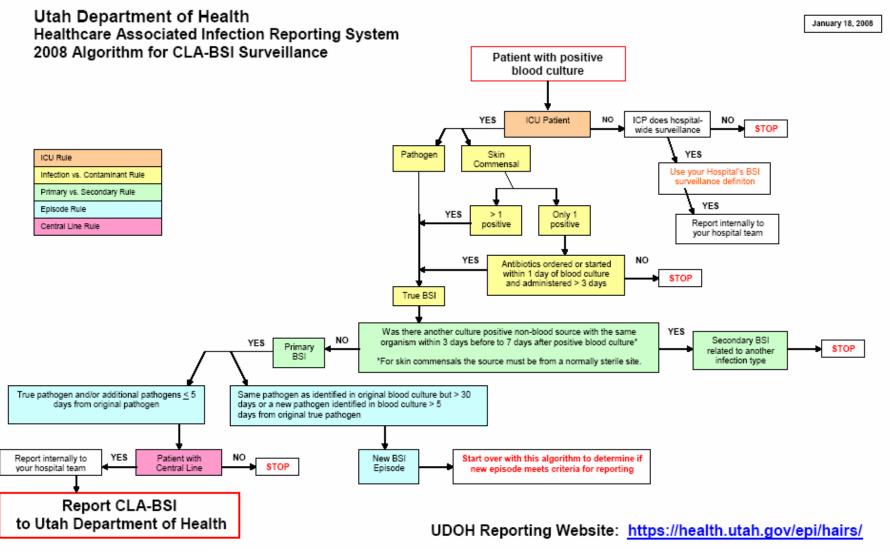
NO- BSI not new episode



CVC RULE: Determine if CVC in place (IJ, SC, PA cath, Broviac, Hickman, Port-a-Cath, PICC, Udall, etc.) YES: If CVC was in place  $\geq$  2 days or 48 hours prior to the first positive BC of an episode









Flow Chart

#### **HAIRS Manual**

- Manual created and used during videoteleconference trainings.
- Covered all aspects of HAI reporting system







Healthcare Associated Infections/Influenza Reporting System

#### **HAIRS**

In Collaboration with: Utah Hospital Association Rocky Mountain Infection Control Association Utah Department of Health

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## Main Database View

🌈 Bureau of Epidemiology - Utah Facility Reporting System - Menu - Windows Internet Explorer

https://health.utah.gov/epi/hairs/pub/menu.php

Bureau of Epidemiology - Utah Facility Reporting Syst...

Edit View Favorites Tools Help

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Main page menu and left side navigation differs depending on user access rights



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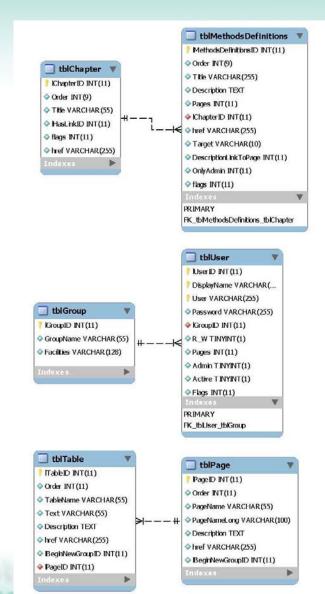
Utah Facility Reporting System



#### Main Database Matrix

- Lean and Agile Software Development
- tblPage and tblFacility 2<sup>n</sup> index
- User have rights to a Group
- Group has access to Facility(s)
- Help and Information
- Administrator Mode
- **Open Source**





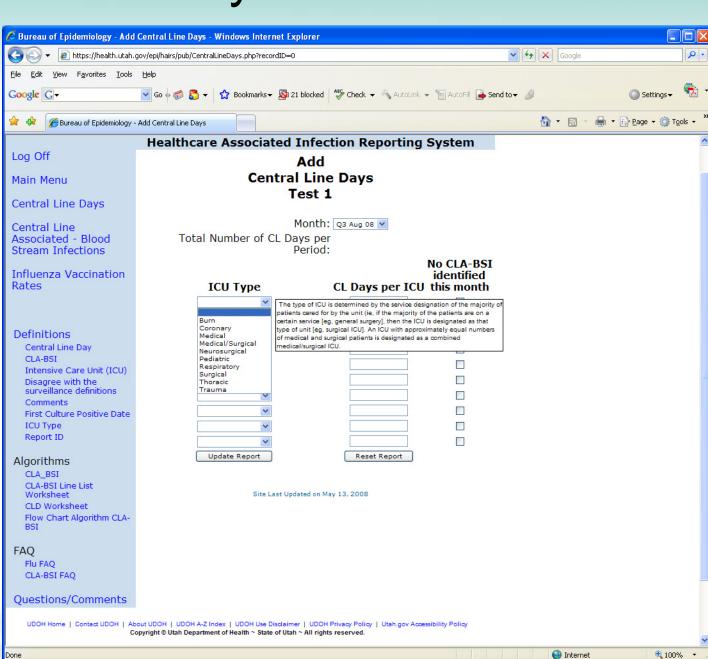




# Central Line Days-Database View

Drop down menu allows user to choose ICU type and month reported





# Central Line Days-Database Matrix

- All drop downs are saved in database
- Drop downs configured by user
- User can enable add or modify by date

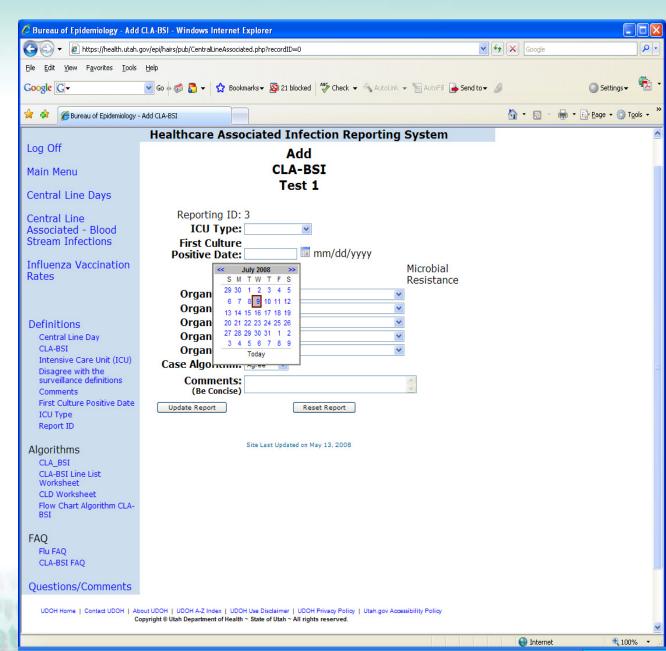




#### **CLA-BSI-Database View**

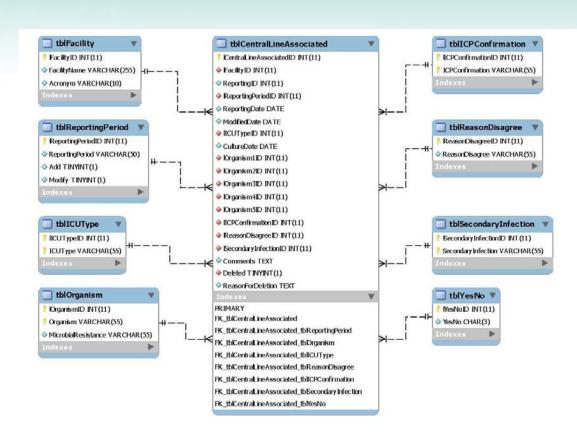
- User has pull down and calendar menu options to autopopulate fields
- Comment field for free text

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### **CLA-BSI-Database Matrix**

- All drop down are saved in database
- Drop downs configured by user
- User can enable add or modify by date
- Fields will display depending on response

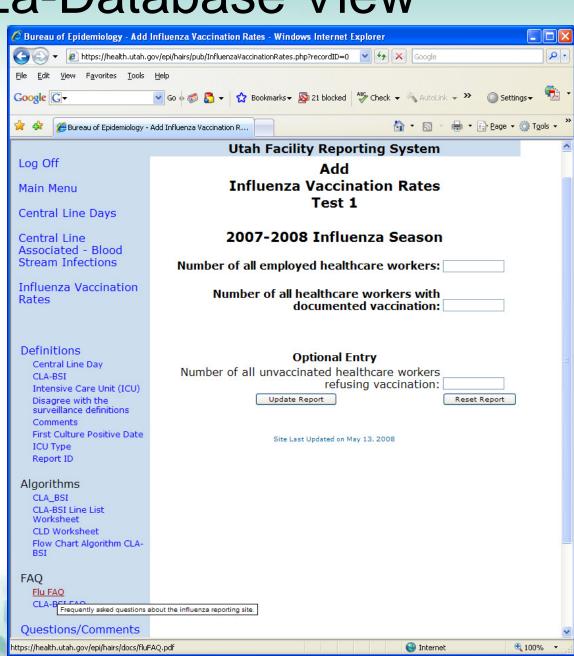




## Influenza-Database View

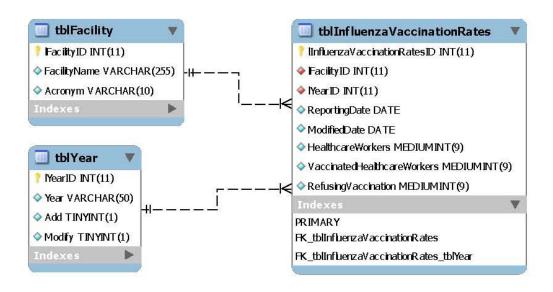
- User enters numbers for fields
- Rate
   automaticall
   y calculated
- User can enable add or modify by year





#### Influenza-Database Matrix

 Least complex of database pages



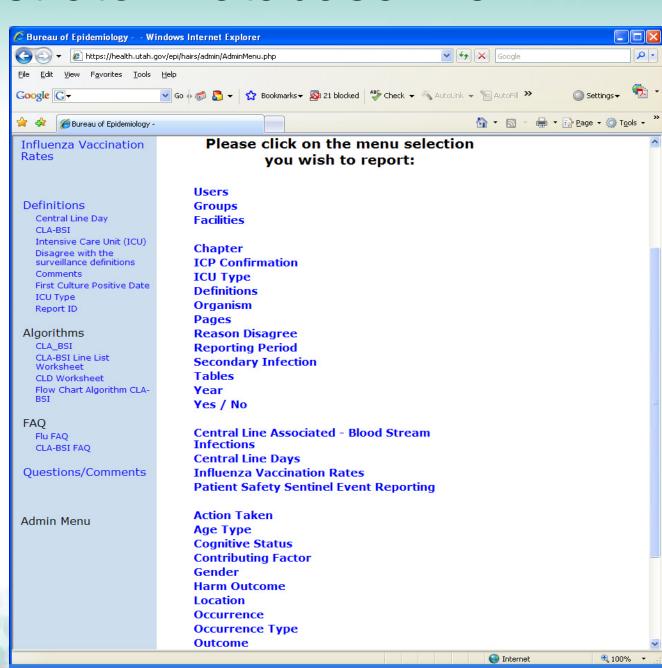




#### Administrator-Database View

- Global system administrators have many options to change
- all drop downs and help/ information configuration
- Local admins have minimal edit rights
  - Add users
  - Edit user

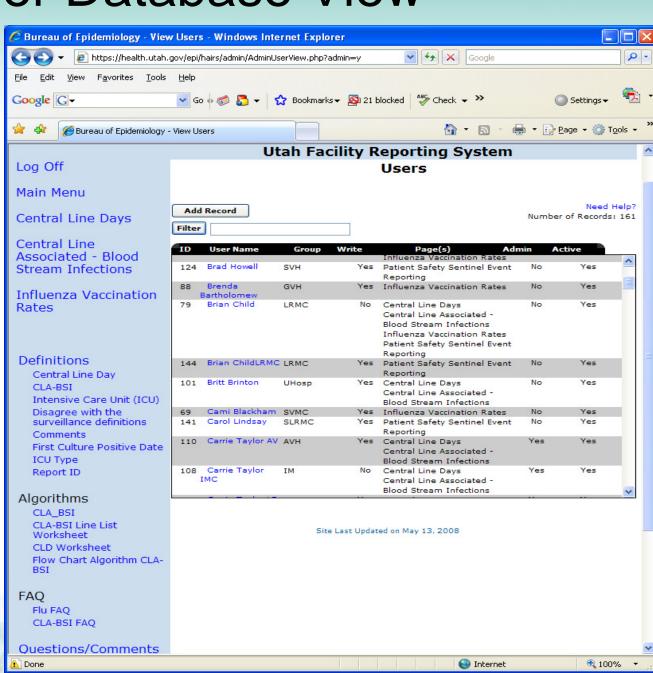




#### **User Database View**

- User may access multiple "pages" based on rights granted
- Users may belong to multiple groups





#### From HAIRS to UFORS

- Director of Patient Safety approached IT personnel to create a system for web reporting of facility Sentinel Events
- The current process has been in place since 2001; 8 general categories are captured with a faxed or emailed qualitative form
- Users group changed the Rule in 2006 and expanded to 32 reportable events consistent with JCAHO and NQF standards
- Change in Rule and expansion drove the need for a web-based reporting system so that staff could spend time analyzing data rather than entering it

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## **UFORS**

- Next generation of tools
  - Users can expand function and use of tools based on evolving needs
  - Program staff are system administrators
  - Open-source
  - Keep costs low by not requiring enterprisewide maintenance
  - Community of practice user driven



# **UFORS Software System**

- MySql
- PHP
  - Easily changed "pages"
  - Program staff add new reportable events to database without requiring IT staff assistance
  - Program staff add and delete users, passwords, and facilities
- Ability to expand to other initiatives, e.g.:
  - Ambulatory Surgical Center Indicators
  - Perinatal Patient Safety –Quality Improvement measures
- Content experts manage their portion while "sharing" system

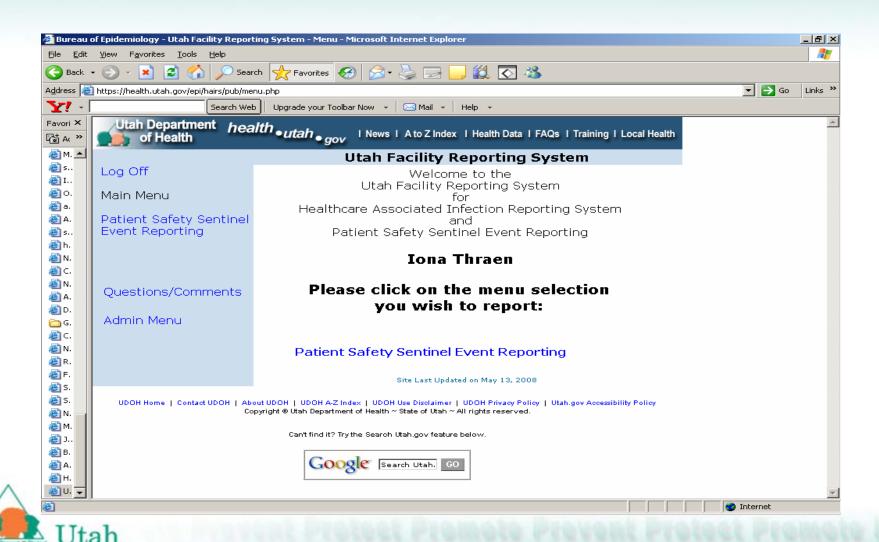
# Old Version of Reporting SE

Desktop ACESS database – one user

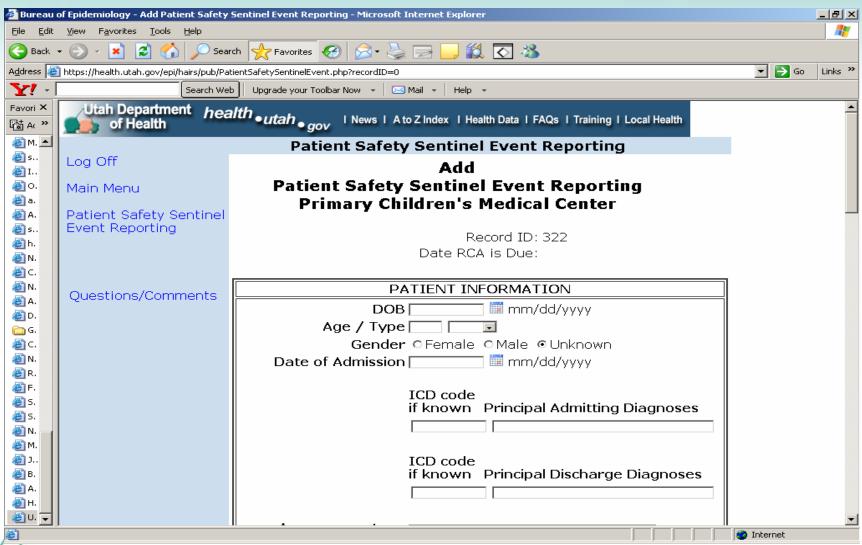
<b>№ Event Reporting</b>	
<u>File Edit View Insert Format Records Tools Window Help</u>	Type a question for help
	\   ▶□ ▶X   <u>□</u> चि ←   @
■ Sentinel Event Reporting Database  Patient's Age:  Q Gender: Male	
Years Months Days Age Group 1 AgeCat: Event Type Description	
Event Type: Death of a patient	
Facility   Contacts   Diagnoses   Narrative   Root Cause Analysis   Report Management	
Reported by source outside	
health care facility?  Type of Facility	
Facility Name: McKay-Dee Hospital Center New Event	
Date Event Occurred: 2/21/2007	
Date Detected as SE: 2/22/2007	
Date Reported to UDOH:  Previous	
Date RCA Completed:	
Landing of French in Fredhish II. L. L. D. II.	
Elecation of Event in Facility: Labor and Delivery	
Location Category: Labor & Delivery	
Record: 1	
Patient's age in years	NUM //



# Patient Safety Sentinel Event-New View

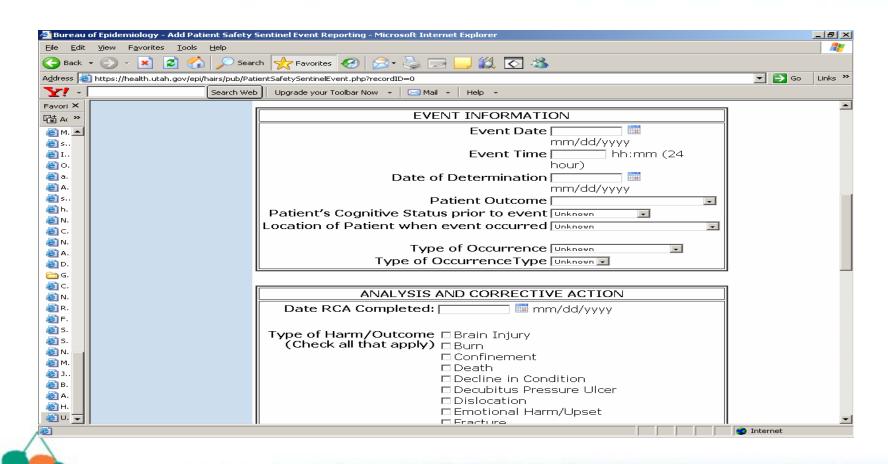


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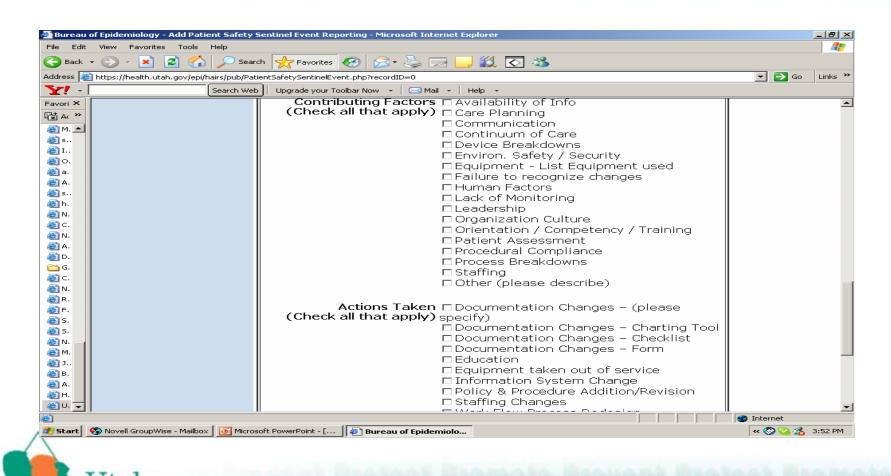


# Patient Safety SE Reporting



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# Patient Safety SE Reporting

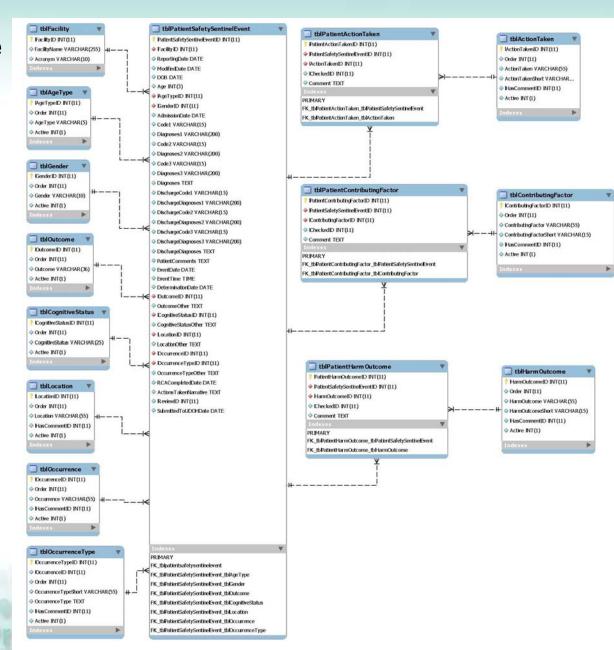


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# Patient Safety-Database Matrix

- Most complex page
- More options than other pages
- All drop down and check box are saved in database
- Drop downs and check boxes are configured by user
- User can enable add or modify by date
- Fields will display depending on response

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# Acknowledgements

- COST members
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- Richard Kurzban, Database Integration Manager
- Rouett Abouzelof, PCMC Infection Control
- SE Users Group

of Health

 Wu Xu, Director, Office of Public Health Informatics Prevent Protect Promote Prevent Protect Promote Prevent Font Protect Promote Prevent Protect Promote Prevent Protect Promote Prevent Protect

## Questions?

